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SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
TEIXEIRA MOFFAT, JONATHAN CHARLES	

ART UNIT	PAPER NUMBER
2857	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USPTO@sughrue.com
sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/595,193	KNOX, RON	
	Examiner	Art Unit	
	JONATHAN C. TEIXEIRA MOFFAT	2857	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 August 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-7,9-21 and 24-29* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-7,9-21 and 24-29* is/are rejected.

8)☒ Claim(s) *14-16* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/8/2011 has been entered.

Response to Arguments

Applicant's arguments filed 8/8/2011 have been fully considered but they are not persuasive.

Applicant argues first that element 17 of Fenwall cannot be the claimed "extension means" because it is not a single means used to test multiple inlets. The examiner respectfully disagrees. The language of the claims allows that, although multiple inlets are tested, each has its own "single extension means" as is the case in Fenwall.

Applicant next argues that the testing device of Fenwall, 20, is not attached. The examiner respectfully disagrees on the grounds that elements 11 and 17 are part of the testing and therefore "attached" to the sampling tube 1 and holes 12.

Applicant argues that "ultrasonic" inherently means that the device transmits sound into a pipe. The examiner respectfully disagrees. "ultrasonic flow sensing" is reasonably any flow sensing using ultrasonic frequencies in some manner.

Applicant argues next that extension means 17 of Fenwall is not a seal between the inlet 12 and the sensing apparatus 20. The examiner respectfully disagrees on the grounds that

element 11 at least is part of the testing apparatus. Thus 17 seals from the inlet 12 to the apparatus 11.

However, although the previous rejection remains valid, the examiner notes that the following new grounds for rejection is a better representation of the prior art as a whole, specifically previously cited reference Krajewski and Fenwall.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

1.

Claims 1-6, 9-13 and 18-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krajewski (US pat pub 20010004842) in view of Fenwall (JP 09-196843).

With respect to claim 1, Krajewski discloses a method comprising:

1) Conducting an upstream measurement of a flow rate through one sample inlet (Fig 1 item 3) using a flow sensor (item 6) and a single extension means (item 4) such that the measuring is performed at a point remote from the sampling inlet, at or near ground level (Fig 1).

The sensor 6 is connected to inlet 3 via extension means 4. The extension means 4 places the device 6 remote from inlet tube 3. 'At or near ground level' is broad enough to encompass the personal air sampler environment of Krajewski.

2) Determining an operational condition of the particle detection system in accordance with the measured flow rate (Abstract and paragraphs 0013 and 0022). *Calibration status, stability, and erratic behavior are determined, which are each 'operational conditions'.*

With respect to claim 1, Krajewski fails to disclose:

3) Wherein the step of conducting an upstream measurement is repeated for at least one more of the sample inlets using the flow sensor and extension means.

Fenwall teaches, with respect to claim 1:

3) Wherein the step of conducting an upstream measurement is repeated for at least one more of the sample inlets using the flow sensor and extension means (Fig 2 and paragraph 0030). *Multiple holes are tested.*

It would have been obvious to one of ordinary skill in the art, at the time of applicant's invention, to apply the testing apparatus of Krajewski to a multiple-inlet environmental system such as that of Fenwall. Both are environmental air systems which require calibration, and thus they are analogous. Fenwall notes that the inlets require testing, and Krajewski discloses an inlet testing system which can be connected or disconnected (paragraph 0025). In combination, the testing portion of Krajewski (elements 5, 6 and 4) could be connected to each inlet (12) of the air sampler of Fenwall (Fig 2) in turn to repeatedly test each inlet. One of ordinary skill in the art would note from Fenwall that such multiple inlet sensors require testing, and that the apparatus of Krajewski is capable of performing such testing. Krajewski even states that one benefit of the

system is to allow fast calibration of a large number of air samplers (paragraph 0012). Thus one of ordinary skill would conclude that applying the tester of Krajewski to the air sampler of Fenwall would be reasonable to try and would yield only predictable results.

With respect to claim 2, Krajewski discloses a method comprising:

1) Measuring the upstream flow rate (Abstract) through one sampling inlet (Fig 1 item 3) of the particle detector system (item 2) using a flow sensor (item 6). *The sensor 6 is connected to inlet 3 via extension means 4. The extension means 4 places the device 6 remote from inlet tube 3. 'At or near ground level' is broad enough to encompass the personal air sampler environment of Krajewski.*

2) Determining an operational condition of the pollution monitoring equipment in accordance with the measured flow rate (Abstract and paragraphs 0013 and 0022). *Calibration status, stability, and erratic behavior are determined, which are each 'operational conditions'.*

3) Wherein the step of measuring the upstream flow rate includes using a single extension means (item 4) such that the measuring is performed at a point remote from the sampling inlet, at or near ground level (Abstract and Fig 1). *The sensor 6 is connected to inlet 3 via extension means 4. The extension means 4 places the device 6 remote from inlet tube 3. 'At or near ground level' is broad enough to encompass the personal air sampler environment of Krajewski.*

4) Wherein the step of measuring the upstream flow rate uses the flow sensor and the extension means (Fig 1).

With respect to claim 1, Krajewski fails to disclose that:

4) Wherein the step of measuring the upstream flow rate is repeated.

Fenwall teaches, with respect to claim 1:

4) Wherein the step of measuring the upstream flow rate is repeated for at least one more of the sample inlets (Fig 2 and paragraph 0030). *Multiple holes are tested.*

It would have been obvious to one of ordinary skill in the art, at the time of applicant's invention, to apply the testing apparatus of Krajewski to a multiple-inlet environmental system such as that of Fenwall. Both are environmental air systems which require calibration, and thus they are analogous. Fenwall notes that the inlets require testing, and Krajewski discloses an inlet testing system which can be connected or disconnected (paragraph 0025). In combination, the testing portion of Krajewski (elements 5, 6 and 4) could be connected to each inlet (12) of the air sampler of Fenwall (Fig 2) in turn to repeatedly test each inlet. One of ordinary skill in the art would note from Fenwall that such multiple inlet sensors require testing, and that the apparatus of Krajewski is capable of performing such testing. Krajewski even states that one benefit of the system is to allow fast calibration of a large number of air samplers (paragraph 0012). Thus one of ordinary skill would conclude that applying the tester of Krajewski to the air sampler of Fenwall would be reasonable to try and would yield only predictable results.

With respect to claims 3 and 13, Krajewski fails to specify repeating the step of measuring the upstream flow rate through respective sample inlets after a predetermined time interval; determining the operational condition by comparing respective flow rate measurements for each of the sample inlets

Fenwall teaches, with respect to claims 3 and 13, repeating the step of measuring the upstream flow rate through respective sample inlets after a predetermined time interval; determining the operational condition by comparing respective flow rate measurements for each of the sample inlets (paragraphs 0030, 0032 and 0034). *Periodic testing.*

With respect to claim 4, Krajewski fails to disclose that the predetermined time interval comprises the occurrence of an incident and the occurrence of a maintenance action.

Fenwall teaches, with respect to claim 4, that the predetermined time interval comprises the occurrence of an incident and the occurrence of a maintenance action (paragraphs 0030-0031). *The buildup of dust is an incident and the monitoring itself is a maintenance action.*

See the above discussion with respect to claim 2 concerning obviousness of and motivation for such a combination. In combining these arts, one of ordinary skill in the art would find it obvious that a repeat calibration not be performed before correction is done. Thus the 'interval' can be defined by being at least as long as it takes to measure and correct the system.

With respect to claim 5, Krajewski discloses that the step of measuring the upstream flow rate, in the first instance, is performed upon one of: installation; cleaning; and repair of the pollution monitoring equipment (Abstract). *Calibration is a form of 'repair'.*

With respect to claims 6, 11 and 19, Krajewski fails to specify that the pollution monitoring equipment comprises one or more of: a plurality of sampling inlets of an aspirated particle detector system, a particle detector, a sampling pipe network of an aspirated particle detector system, a portion of a sampling pipe network of an aspirated particle detector system an aspirated particle detector system.

Fenwall teaches, with respect to claims 6, 11 and 19, that the pollution monitoring equipment comprises one or more of: a plurality of sampling inlets of an aspirated particle detector system (Fig 1 item 12) a particle detector (Fig 2 item 3), a sampling pipe network of an

aspirated particle detector system (Fig 2 item 7), a portion of a sampling pipe network of an aspirated particle detector system (Fig 2) an aspirated particle detector system (Fig 2).

Although Krajewski refers to the system as an 'air sampler' and does not mention particles, one of ordinary skill in the art would be aware that such a system is detecting particles in air and is fairly an 'air sampler' similar to that of Fenwall.

With respect to claim 9, Krajewski fails to disclose one or more of: sampling pipe network obstruction and sampling inlet obstruction.

Fenwall teaches, with respect to claim 9, one or more of: sampling pipe network obstruction and sampling inlet obstruction (paragraph 0030). *Dust collection is obstruction.*

It would have been obvious to one of ordinary skill in the art, at the time of applicant's invention, to modify Krajewski to detect an obstruction. Fenwall teaches that dust collection may be detected based upon flow parameters. One of ordinary skill in the art would find that Krajewski, in monitoring a multi-inlet system such as that of Fenwall, would also be able to detect blockages or dust and would have been motivated to do so in order to insure proper operation of the environmental system.

With respect to claim 10, Krajewski discloses an apparatus comprising:

1) A flow sensor arrangement (Fig 1) adapted to form a sealed fluid communication path between a flow sensor (item 6) and a sampling inlet of the detector system (item 3), wherein the flow sensor determines the flow rate through the sampling inlet so as to allow a determination of an operating condition of the pollution monitoring equipment (Abstract and paragraphs 0013 and 0022). *Calibration status, stability, and erratic behavior are determined, which are each*

'operational conditions'. The sensor 6 is connected to inlet 3 via extension means 4. The extension means 4 places the device 6 remote from inlet tube 3. '

2) Wherein the sealed fluid communication path further includes a single extension means between the flow sensor and the sampling inlet (item 4). *The extension means 4 places the device 6 remote from inlet tube 3. '*

3) Wherein the flow sensor arrangement is adapted to form a sealed fluid communication path with respective sampling inlet of the detector system (item 4).

With respect to claim 10, Krajewski fails to disclose:

1) One of a plurality of sampling inlets.

Fenwall teaches, with respect to claim 10:

1) A plurality of sampling inlets (Figs 1 and 2 item 12).

It would have been obvious to one of ordinary skill in the art, at the time of applicant's invention, to apply the testing apparatus of Krajewski to a multiple-inlet environmental system such as that of Fenwall. Both are environmental air systems which require calibration, and thus they are analogous. Fenwall notes that the inlets require testing, and Krajewski discloses an inlet testing system which can be connected or disconnected (paragraph 0025). In combination, the testing portion of Krajewski (elements 5, 6 and 4) could be connected to each inlet (12) of the air sampler of Fenwall (Fig 2) in turn to repeatedly test each inlet. One of ordinary skill in the art would note from Fenwall that such multiple inlet sensors require testing, and that the apparatus of Krajewski is capable of performing such testing. Krajewski even states that one benefit of the system is to allow fast calibration of a large number of air samplers (paragraph 0012). Thus one

of ordinary skill would conclude that applying the tester of Krajewski to the air sampler of Fenwall would be reasonable to try and would yield only predictable results.

With respect to claim 12, Krajewski discloses an apparatus comprising:

1) A connector adapted to sealingly engage a sampling inlet (item 3) of a particle detector system (item 2). *The end of the tube 4 is a 'connector' to tube 3.*

2) A sensing device (item 6) for testing flow rate through the sampling inlet of the particle detector system, the sensing device comprising a flow sensor for conducting an upstream measurement of flow through the sampling inlet, wherein the sensing device is operatively connected to a flow data storage (Abstract and paragraph 0013 and Fig 1 item 1).

3) A single extension means providing sealed fluid communication between the connector and sensing device such that a flow path is formed between the sensing device and the sampling inlet via the connector (Fig 1 item 4). *The extension means 4 places the device 6 remote from inlet tube 3.*

4) Wherein the connecting device is adapted to sealinglv engage a respective sampling inlet of the particle detector system (Fig 1).

With respect to claim 12, Krajewski fails to disclose:

1) A connector adapted to sealingly engage one of a plurality of sampling inlets.

4) Wherein the connecting device is adapted to sealinglv engage respective sampling inlets.

Fenwall teaches, with respect to claim 12, a plurality of sampling inlets to be tested (Figs 1 and 2 item 12).

It would have been obvious to one of ordinary skill in the art, at the time of applicant's invention, to apply the testing apparatus of Krajewski to a multiple-inlet environmental system such as that of Fenwall. Both are environmental air systems which require calibration, and thus they are analogous. Fenwall notes that the inlets require testing, and Krajewski discloses an inlet testing system which can be connected or disconnected (paragraph 0025). In combination, the testing portion of Krajewski (elements 5, 6 and 4) could be connected to each inlet (12) of the air sampler of Fenwall (Fig 2) in turn to repeatedly test each inlet. One of ordinary skill in the art would note from Fenwall that such multiple inlet sensors require testing, and that the apparatus of Krajewski is capable of performing such testing. Krajewski even states that one benefit of the system is to allow fast calibration of a large number of air samplers (paragraph 0012). Thus one of ordinary skill would conclude that applying the tester of Krajewski to the air sampler of Fenwall would be reasonable to try and would yield only predictable results.

With respect to claim 18, Krajewski discloses a method comprising:

1) Connecting a flow sensing apparatus (Fig 1 item 6) including a single extension means (item 4) to a sampling inlet of an air sampling system (item 3).

2) Measuring the air flow rate into the sampling inlet (paragraph 0013).

3) Comparing the measured air flow with a previously measured air flow at the time of commissioning the detector system (paragraph 0013).

4) Determining from the comparative measurements whether a component of the detector system requires maintenance (Abstract and paragraphs 0013 and 0022). *Calibration status, stability, and erratic behavior are determined, which are each 'operational conditions'. Re-calibration is maintenance.*

With respect to claim 18, Krajewski fails to disclose:

1) A device connected to one of a plurality of sampling inlets.

5) Repeating the connecting step for at least one or more of the plurality of sampling inlets and subsequently performing the measuring, comparing, and determining steps.

Fenwall teaches, with respect to claim 18:

1) A plurality of sampling inlets to be tested (Figs 1 and 2 item 12).

5) Repeating measurements for at least one or more of the plurality of sampling inlets and subsequently performing measuring, comparing, and determining steps (paragraph 0030). *Multiple holes are tested.*

It would have been obvious to one of ordinary skill in the art, at the time of applicant's invention, to apply the testing apparatus of Krajewski to a multiple-inlet environmental system such as that of Fenwall. Both are environmental air systems which require calibration, and thus they are analogous. Fenwall notes that the inlets require testing, and Krajewski discloses an inlet testing system which can be connected or disconnected (paragraph 0025). In combination, the testing portion of Krajewski (elements 5, 6 and 4) could be connected to each inlet (12) of the air sampler of Fenwall (Fig 2) in turn to repeatedly test each inlet. One of ordinary skill in the art would note from Fenwall that such multiple inlet sensors require testing, and that the apparatus of Krajewski is capable of performing such testing. Krajewski even states that one benefit of the system is to allow fast calibration of a large number of air samplers (paragraph 0012). Thus one of ordinary skill would conclude that applying the tester of Krajewski to the air sampler of Fenwall would be reasonable to try and would yield only predictable results.

With respect to claims 20-21 and 24-25, Krajewski discloses an apparatus and computer software adapted to perform one of: determine an operational condition of a particle detection system (Abstract and paragraph 0013; *calibration, erratic behavior and stability are 'operational conditions'*), test the operation of pollution monitoring equipment (Abstract and paragraph 0013; *again, each of these is fairly 'operation'*), or field test a particle detector system (Abstract; *this if field testing*), said apparatus comprising: processor means adapted to operate in accordance with a predetermined instruction set (Fig 1 item 1). *Computers inherently use instruction sets.*

With respect to claims 26-29, Fenwall discloses that the particle detection system includes a pipe in which said sample inlet is provided (Fig 1 item 3) and a particle detector downstream of the plurality of sample inlets (item 2).

With respect to claims 26-29, Fenwall fails to disclose a plurality of sample inlets.

Fenwall teaches, with respect to claims 26-29, a plurality of sample inlets upstream of a particle detector (Figs 1-2).

See above rejection for a full discussion of the obviousness of and motivation for such a modification.

2.

Claims 7and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krajewski and Fenwall as applied to claims 1 and 10 above, and further in view of Stark (US pat 6439062).

With respect to claims 7 and 17, Krajewski fails to disclose an ultrasonic flow sensor.

Stark teaches, with respect to claims 7 and 17, that measuring of flow rate is performed using an ultrasonic flow sensor (column 1 lines 16-25 and column 8 lines 42-48).

It would have been obvious to one of ordinary skill in the art to modify the apparatus and method of Krajewski and Fenway by utilizing an ultrasonic flow monitoring device as taught by Stark. Krajewski does not specify what sort of flow meter be used. One of ordinary skill in the art would logically have looked to the prior art for information concerning known devices which can perform this function, such as that of Stark. Ultrasonic flow meters are well known in the art of flow metering and thus would have been an obvious choice.

Conclusion

Claims 14-16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Each of claims 14 and 15 contains recitation of an "articulated connection intermediate... the extension means" and one of the connector and the sensing device. Although Krajewski has a sensing means and a connector, there is no intermediate component. Further, although modification to add such an articulated component would not be impair the functionality of Krajewski (which requires only a sealed connection), there is no motivation in the prior art to do so.

No further prior art of record shows this element in combination with the other limitations of the claims. Thus it is neither anticipated by nor obvious in view of the prior art of record.

Claim 16 depends upon claim 14 and thus is allowable for at least the same reasons.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JONATHAN C. TEIXEIRA MOFFAT whose telephone number is (571)272-2255. The examiner can normally be reached on Mon-Fri, from 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jonathan C. Teixeira Moffat/
Primary Examiner AU 2857
3/9/2012